

BATHE DIRECTOR OF
CENTRAL INTELLIGENCE

National Intelligence Council

12 Nov 1986

DDCI

Bob - I scanned Larry Gershwin's comments, then incorporated some & modified others in developing my own on your draft presentation on SDI. I liked the overall theme of the paper, and the evidence marshalled to support it - my annotated comments are intended to put key points in bolder relief, &/or to clarify or update. I'll defer to Larry on technical matters if it appears we differ at any points. I hope this helps!

V/R R. B. [Signature]

CENTRAL INTELLIGENCE AGENCY

OFFICE OF THE DEPUTY DIRECTOR

10 Nov 86

NOTE FOR: BG Horton, C/NIC

Attached is a copy of the DDCI's draft speech on "The Soviets and SDI" to be given to the Bay Area International Forum, a group of senior executives of the major Bay area corporations, on 25 November in San Francisco.

Mr. Gates would appreciate your comments on this draft within the next day or two. A copy was also given to Larry Gershwin for his comments.

STAT

DRAFT/10Nov

The Soviets and SDI

One of the most significant developments in a nuclear world since atomic bombs were dropped on Hiroshima and Nagasaki was the President's call to the nation in March 1983 to build a strategic defense system to protect the United States and its allies. This visionary concept and the President's determination to bring it to reality initially was greeted with widespread skepticism and a good deal of head shaking over his presumed naivete. And yet, as the nation's scientists and engineers have been mobilized, the technologies examined, and successful tests carried out a growing number of scientific and political leaders have come not only to accept the validity of the concept but the wisdom of implementing it. While ^{remaining} skeptics and critics continue to voice their doubts, there is ^{at least} one person in the world who believes nearly as strongly as Ronald Reagan that SDI will work and that America can build it if it decides to do so -- and that person is Mikhail Gorbachev.

It seemed appropriate to me to speak today in this center of high technology development not of our own SDI with which some of you are more familiar than I ~~am~~ but rather the Soviet approach to strategic defense and their own pursuit of SDI type

Page Denied

Next 1 Page(s) In Document Denied

value in it for comparative purposes. For example, it is our judgment that over the past ten years the Soviet Union has spent nearly a \$150 billion on strategic defense, or almost 15 times what the United States has spent.

And what have they bought for their money? They have the world's only operational ballistic missile defense system, installed around Moscow. Six years ago they began to upgrade and expand that system ^{into an essentially new configuration that surpasses} the limits allowed by the 1972 ABM Treaty. When completed the modernized ABM will be a two-layer defense composed of silo-based long-range modified Galosh interceptors; Silo-based, high acceleration ⁶²²⁰⁰ interceptors designed to engage targets within the atmosphere; associated engagement and guidance radars; and a new large radar at Pushkino designed to control ABM engagements. The silo-based launchers may be reloadable. The new system will have the 100 ABM launchers permitted by the Treaty and could be fully operational next year. The Soviet system for detection and tracking of ballistic missile attacks consists of a launch detection satellite network, over the horizon radars, and a series of a large phased array radars.

The current launch detection ^{system consists of 2} satellite network ^{plus} consists of two over the horizon radars directed at US ICBM fields. The next operational layer of ballistic missile detection consists of eleven large ballistic missile early warning radars at ^{several} ~~six~~ locations on the periphery of the USSR. These radars can

Page Denied

individual ABM sites in a matter of months rather than the years that are required for ^{mobile} traditional ^{sea-based} ABM systems. Soviet activities in this regard potentially violate the ABM Treaty's prohibition on the development of a mobile land-based ABM system or components. We estimate that by using these components the Soviets could undertake rapidly paced ABM deployments to strengthen the defenses of Moscow and defend key targets in the Western USSR and east of the Urals by the early 1990s. In addition to these developments, the SA-X-12 surface to air system, to be deployed in the Soviet ground forces at any time, can engage conventional aircraft, cruise missiles and tactical ballistic missiles. It ^{may eventually be assessed to} ~~could also~~ have capabilities to intercept some types of US strategic ballistic missile re-entry vehicles ^{as well.} Its technical capabilities bring to the forefront the problem that improving technology is blurring the distinction between air defense and ABM systems. This problem will be further complicated as newer or complex air defense missile systems are developed.

We are very concerned that the Soviets continuing development efforts give them the potential for widespread ABM deployments. The Soviets have the major components for an ABM system that could be used for widespread ABM deployments well in excess of ABM Treaty limits. The components include radars, and above ground launcher and high acceleration missile that will be deployed around Moscow. The potential exists for the production lines associated with the upgrade of the Moscow ABM

Page Denied

units, war related industrial production and services, the essential work force, as much of the population as possible.

The USSR has ^{made mobile cr} hardened its ICBM silos, launch facilities and key command and control centers to an unprecedented degree. Much of today's US retaliatory force would be ineffective against those ^{mobile & cr} hardened targets. Soviet leaders and managers at all levels of the government and Party are provided hardened alternate command posts located well away from the urban centers, in addition to many deep bunkers and blast shelters in Soviet cities. This comprehensive and redundant system provides hardened alternate facilities for more than 175,000 key Party and government personnel. Elaborate plans also have been made for the full mobilization of the national economy in support of a war effort. Reserves of vital materials are maintained, many in hardened underground structures. Redundant industrial facilities are in active production. Industrial and other economic facilities have been equipped with blast shelters for the work force and detailed procedures have been developed for the relocation of selected plants and equipment.

^{And finally,}
As if all these developments were not worrisome enough, since the late 1960s the Soviet Union also has been pursuing advanced technologies for strategic defense -- technologies which the US is intending to explore in its strategic defense initiative program. The Soviets expect that military applications of directed energy technologies hold promise of

overcoming weaknesses in their conventional air and missile defenses. The Soviets have been working as long as the United States in laser, particle beam, kinetic energy and microwave technologies applicable to strategic weapons. Let me briefly discuss their activities in each of these.

The Soviet laser weapons program began in the 1960s. Many Soviet organizations both civilian and military are involved. The Soviet laser weapon effort is guided and supported by some of the best scientists and engineers in the Soviet Union. Yevgeniy Velikhov, the rising vice president of the Soviet Academy of Sciences, made his early mark in directed energy related weapons research. (He is, by the way, the same Velikhov who was one of 200 Soviet signatories of a full page ad in the New York Times which stated that SDI would not work. *he clearly knows better!!*)

The level of effort that the Soviets have applied to their laser weapons program is great. Some estimate that the Soviet effort is three to five times greater than that of the United States. While it is difficult for us to make a precise estimate, it is clear based on the observed scale and scope of the Soviet effort that their program is considerably larger than that of the United States. For example, the Soviets have built over a half a dozen major R&D facilities and test ranges and have an estimated 10,000 scientists and engineers associated with the development of lasers for weapons.

The Soviets have conducted research in the three types of gas lasers that the US considers promising for weapons applications: a gas dynamic laser, the electric discharge laser, and the chemical laser. Soviet achievements are impressive. The Soviets have not only followed suit with the US in their work on these three kinds of lasers, they have continued to work on certain types of lasers which the US abandoned. The Soviets have been working on other types of lasers that the US has not seriously considered for weapons application until very recently. These are lasers which operate at about a micron wave length. They also are investigating excimer, free electron and x-ray lasers and have been developing argon ion lasers for over a decade. The Soviets appear generally capable of supplying the prime power, energy storage and auxiliary components needed for most laser and other directed energy weapons. They have developed a rocket-driven magnetohydrodynamic generator which produces over 15 megawatts of electrical power -- a device that has no counterpart in the West. The Soviets may also have the capability to develop the optical systems necessary for laser weapons to track and attack their target.

The USSR has now progressed, in some cases, beyond technology research. It already has ground-based lasers that could be used to interfere with US satellites and could have prototype space-based anti-satellite laser weapons by the ~~end of the decade~~ *early 1990s. We expect to test the feasibility of* ~~The Soviets could have prototypes for~~

ground-based lasers for defense against ballistic missiles by the late 1980s and could begin testing components for a large scale deployment system in the ~~early~~ 1990s.

The remaining difficulties in fielding an operational system will require still more development time. An operational ground-based laser for defense against ballistic missiles probably could not be deployed until ~~the late 1990s or~~ after the year 2000. If technology developments prove successful, the Soviets may deploy operational space-based anti-satellite lasers in the 1990s and might be able to deploy space-based laser systems for defense against ballistic missiles after the year 2000.

Soviet research and development of those technologies that could support a particle beam weapon also have been impressive. Work on ion sources has been spectacular. We estimate that we may be able to test a prototype particle beam weapon intended to disrupt the electronics of satellites in the 1990s. A weapon designed to destroy satellites could follow later. A weapon capable of physically destroying missile boosters or warheads probably would require additional years of research and development.

The USSR also has conducted research in the use of strong radio frequency signals that have the potential to interfere with or destroy critical electronic components of ballistic

missile warheads. Soviets could test a ground-based radio frequency weapon capable of damaging satellites in the 1990s. Soviet capabilities to develop micro-wave weapons or radio frequency weapons are on a par if not superior to those of the US.

The Soviets also have a variety of research programs underway in the area of kinetic energy weapons using the high speed collision of a small mass with the target as the kill mechanism. Long range, space-based kinetic energy systems for defense against ballistic missiles probably could not be developed until the mid-1990s or even later. The USSR could, however, could deploy in the near term a short-range space-based system useful for satellite or space station defense or for close-in attack by a maneuvering satellite.

Perhaps the biggest obstacle to Soviet success in these advanced defenses against ballistic missiles are remote sensor and computer technologies -- currently more highly developed in the West than in the USSR. The Soviets are devoting considerable resources to improving their abilities and expertise in these technologies. An important part of that effort involves increasing exploitation of open and clandestine access to Western technology. For example, the Soviets have long been engaged in well funded effort to purchase US high technology computers, test and calibration equipment, and sensors illegally through third parties.

Page Denied

The Soviets wish that the President's March 23rd announcement had never been made and that they could pursue their own continued and solitary development of an anti-ballistic missile defense and research on advanced strategic defense without competition from the United States. The advent of SDI, however, faces the Soviets with the mobilization of an American effort to build a strategic missile defense in the United States and they are moving heaven and earth to convince or pressure the United States to drop it. They know we can do it, in part because they are doing large elements of it themselves.

In the Soviet view, a US decision at this point to give up on defense and to rely solely on offensive weapons for deterrence, ^{which they do not} not only would preserve their monopoly in strategic defense, but would be a key indicator of a loss of US will to compete militarily. Moreover, failure to proceed with an American strategic defense would hand the Soviets a unilateral military advantage of historic consequence. ^{Both would have} ~~with~~ awesome negative implications for strategic stability and peace.